

Rule 1.126

We Claim:

1. (New) A nanocomposite composition comprising a matrix polymer selected from a polyamide and a polyester; and platelet particles exfoliated in the matrix polymer, wherein the platelet particles are dispersed in a matrix polymer-compatible oligomeric resin selected from a polyamide and a polyester, and wherein the platelet particle oligomeric resin is incorporated into the matrix polymer.
2. ~~3.~~ (New) The nanocomposite composition according to claim 1, wherein the platelet particle oligomeric resin is a nylon polymer. ¹
3. ~~4.~~ (New) The nanocomposite composition according to claim ~~2~~, wherein the platelet particle oligomeric resin is MXD6 nylon. ¹
4. ~~5.~~ (New) The nanocomposite composition according to claim 1, wherein the matrix polymer is a polyamide. ⁴
5. ~~6.~~ (New) The nanocomposite composition according to claim ~~5~~, wherein the matrix polymer is MXD6 nylon and the platelet particle oligomeric resin is MXD6 nylon. ⁴
6. ~~7.~~ (New) The nanocomposite composition according to claim 1, wherein the matrix polymer is MXD6 nylon and the platelet particle oligomeric resin is poly(ethylene terephthalate).
7. ~~8.~~ (New) The nanocomposite composition according to claim 1, wherein the matrix polymer is a polyester. ¹
8. ~~9.~~ (New) The nanocomposite composition according to claim ~~8~~, wherein the matrix polymer is poly(ethylene terephthalate) and the platelet particle oligomeric resin is MXD6 nylon. ¹
9. ~~10.~~ (New) The nanocomposite composition according to claim ~~8~~, wherein the matrix polymer is poly(ethylene terephthalate) and the platelet particle oligomeric resin is poly(ethylene terephthalate). ¹
10. ~~11.~~ (New) The nanocomposites composition according to claim 1, wherein the platelet particles are derived from an organic or inorganic clay material.
11. ~~12.~~ (New) The nanocomposite composition according to claim 1, comprising from 0.5% to about 25% by weight of platelet particles exfoliated in a matrix polymer, the platelet particles being derived from an organic or inorganic clay material and dispersed in a matrix polymer-compatible oligomeric resin, wherein the matrix polymer is present in an amount from about 75% by weight to about 99.5% by weight of the nanocomposite composition and is the reaction product of meta-

xylylene diamine and a dicarboxylic acid.

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- 12 ~~13~~. (New) The nanocomposite composition according to claim ~~12~~, wherein the matrix polymer is intercalated into the clay material prior to dispersing the clay material throughout the matrix polymer.
- 13 ~~15~~. (New) A method of decreasing oxygen permeability of a film or sheet of a matrix polymer comprising dispersing throughout said matrix polymer an intercalate, in an amount from about 0.5% by weight to about 25% by weight, based on the total weight of the film or sheet material and the intercalate, the intercalate formed by treating a layered clay material with organic cations to form an organoclay, wherein said matrix polymer is a polymer or oligomer formed from the reaction product of a meta-xylylene diamine and a dicarboxylic acid, such that a portion of the matrix polymer is co-intercalated between the layers of the organoclay.
- 14 ~~16~~. (New) A method according to claim ~~15~~, wherein the matrix polymer is an oxygen scavenger.
- 15 ~~17~~. (New) A method according to claim ~~15~~, wherein the matrix polymer is co-intercalated into the layered clay material prior to dispersing the layered clay material throughout the matrix polymer.
- 16 ~~18~~. (New) A method according to claim ~~15~~, wherein the matrix polymer is a polymer or oligomer of the reaction product of meta-xylylene diamine and adipic acid.
- 17 ~~19~~. (New) A method of manufacturing a composite material containing about 75% to 99.5% by weight of a matrix polymer comprising a polymer or oligomer of a reaction product of meta-xylylene diamine and a dicarboxylic acid, and about 0.5% to about 25% by weight of an intercalated clay material comprising:

contacting the clay material with an organic cation salt, to achieve intercalation of said organic cation salt between adjacent clay platelets; and

dispersing the intercalated clay material throughout said matrix polymer to achieve intercalation of a portion of the matrix polymer between the clay platelets.

- 18 ~~20~~. (New) The method according to claim ~~19~~, wherein the reaction product of meta-xylylene diamine and a dicarboxylic acid is MXD6 nylon and wherein the matrix polymer is MXD6 nylon.